

MAINE STATE LEGISLATURE

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PUBLIC DOCUMENTS OF MAINE

1913

BEING THE

ANNUAL REPORTS

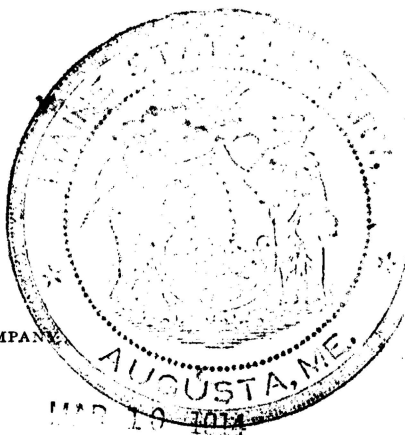
OF THE VARIOUS

DEPARTMENTS AND INSTITUTIONS

For the Year 1912

VOLUME IV

WATERVILLE
SENTINEL PUBLISHING COMPANY
1914



ANNUAL REPORT

OF THE

UNIVERSITY OF MAINE

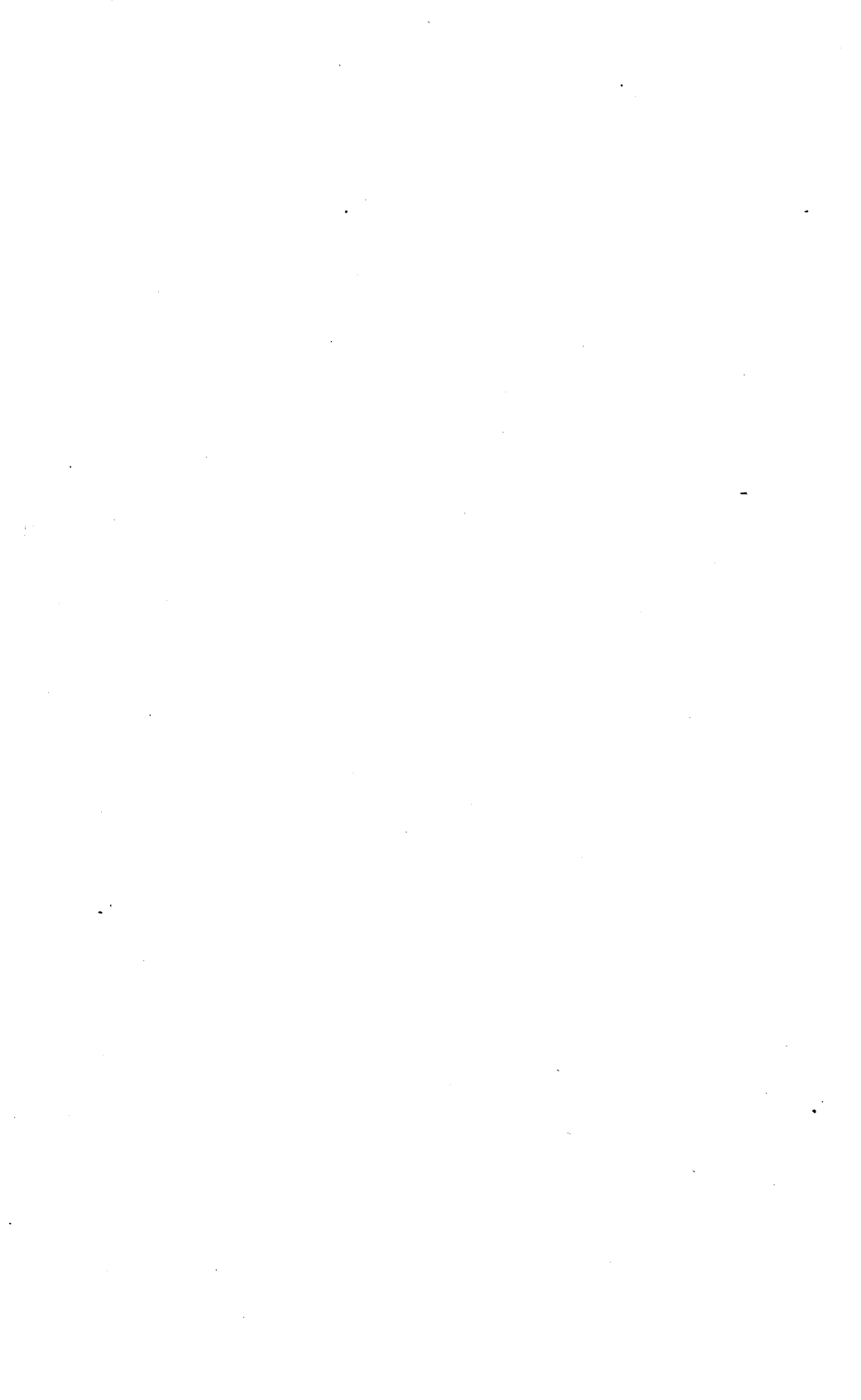
FOR THE YEAR ENDING JUNE 30, 1912

**REPORTS OF THE TRUSTEES, TREASURER, PRESIDENT,
DEANS, DIRECTOR, LIBRARIAN, AND PROFESSOR
OF PHYSICAL CULTURE**

Published for the University
SENTINEL PUBLISHING COMPANY
WATERVILLE, MAINE
1912

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REPORT OF THE PRESIDENT OF THE BOARD OF TRUSTEES

To the Honorable Governor and Council:

The Trustees of the University of Maine respectfully submit their Annual Report to you, with the reports of the President, Treasurer, and other officers of the University.

The past year has brought about one change in the Board of Trustees,—the resignation of Hon. Oscar R. Wish, of Portland, whose place has been filled by the appointment of Hon. W. R. Pattangall, of Waterville. The retirement of Mr. Wish took from our Board a most earnest and loyal supporter of this institution, and its announcement was received by the Board with much regret. But we are pleased to know that his place has been filled by one of the graduates of the University who has achieved distinction and honor in his profession and in the public service of the State.

The work of the University during the past year has been prosecuted with diligence, and, as we believe, with increasing benefit to the people of Maine.

This institution now has more than one thousand young men and women in its different classes and courses. There has been a very great increase in numbers in the entering freshman class for 1912, and it is with great difficulty that we are able to furnish proper accommodations for so large a number of students as this institution now has. There is not only insufficient dormitory room, but there is lack of room for teaching and class room work, and laboratory facilities. If the increase in number of students in the future continues as it has in the past, the State will have to provide additional buildings and apparatus for the proper handling and instruction of the student body. A committee will be appointed by the Board of Trustees to present this matter more in detail to the next Legislature.

We feel that the work done at our State University, and the position which it occupies relative to the other state universities in the Nation, should commend it to the people of the State and to their Representatives in the Legislature in such a way that in the future no serious objections will be made to all reasonable and proper appropriations of money which are shown to be necessary in order to carry on this work.

The reports of the President, Treasurer, and other officers give in detail the work which is being done at present, and the ambitions of those in charge of the institution for its future development. The Treasurer's report shows in detail the receipts and expenditures of every dollar of money received from the National and State treasuries and from private bequests.

In retiring from this Board of Trustees, as I expect to retire in a very short time, after a service of more than a quarter of a century, I wish to extend to all those I have been associated with in the past my appreciation of the courtesy and kindness I have received from them during this long term of service. It is with a feeling of regret that I am to discontinue my service in this connection. Of all the work which I have done in a private or public capacity, this I have enjoyed the most. Looking back over this long period of time and considering how small the institution was when I commenced as compared with what it is today, and looking ahead for a like period, I cannot but feel that the future has in store for this institution a still greater and increasing development and usefulness to the people of Maine; that the work it is doing will continue to be more and more appreciated; that the work of education, especially along scientific lines, will be better and more generally understood by the great mass of our people; and that the money which the State has expended in the development of this institution is sure to be considered as money which has been and will be wisely and advantageously expended for the benefit of the people as a whole.

Respectfully submitted,

WILLIAM T. HAINES,

President of the Board of Trustees

REPORT OF THE TREASURER OF THE UNIVERSITY OF
MAINE FOR THE FISCAL YEAR ENDED JUNE 30, 1912

ASSETS

Trust Fund Investments:

Coburn Trust Fund	Schedule A	\$100,000 00	
U. S. Land Scrip Fund	Schedule A	118,300 00	
Nehemiah Kittredge Loan Fund	Schedule B	1,306 50	
Kidder Scholarship Fund	Schedule B	750 00	\$220,356 50
<hr/>			
Lands and Buildings	Schedule C		534,465 73
Inventories	Schedule D		200,817 63
Accounts Receivable	Schedule E		10,233 03
General Appropriation, State of Maine	Schedule F		9,352 16
Bills Receivable	Schedule G		4,301 58
Cash on hand, June 30, 1912	Schedule H		882 75
<hr/>			
			\$980,409 38

LIABILITIES

Trust Funds:

Coburn Trust Fund		\$100,000 00	
U. S. Land Scrip Trust Fund		118,300 00	
Nehemiah Kittredge Loan Fund		1,306 50	
Kidder Scholarship Fund		750 00	\$220,356 50
<hr/>			
Bills Payable	Schedule I		54,750 00
Accounts Payable	Schedule J		25,687 49
Surplus			679,615 39
<hr/>			
			\$980,409 38

SCHEDULE A—ASSETS

Coburn Trust Fund Investment:

This represents a legacy of \$100,000.00 received by the University under the will of Hon. Abner Coburn, late of Skowhegan, Maine. It is invested in registered bonds of the State of Maine, dated Feb. 5, 1889, due July 1, 1917, bearing interest at 4% per annum, of the par value of..... \$100,000 00

United States Land Scrip Trust Fund Investment:

Under the provisions of an Act of the Congress of the United States, approved July 2, 1862, the State of Maine received two hundred and ten thousand acres of land, from

the sale of which the University has realized an endowment fund. This fund is represented by registered bonds of the State of Maine, dated June 1, 1889, due June 1, 1915, bearing interest at 5% per annum, of the par value of..... \$118,300 00

NOTE: All of the foregoing described bonds are deposited with the Treasurer of the State of Maine.

SCHEDULE B—ASSETS

Nehemiah Kittredge Loan Fund Investment:

This fund was established by Nehemiah Kittredge, of Bangor, Maine. It is under the control of the President and Treasurer of the University, and from the same, loans are made to needy students in the three upper classes. It is now invested as follows:

Twenty promissory notes, signed by present and former students of the University, and aggregating, exclusive of accrued interest	\$1,041 98
On deposit in Bangor Savings Bank, Book No. 45602....	264 52
	<hr/>
	\$1,306 50

Kidder Scholarship Fund Investment:

The gift of Frank E. Kidder of Denver, Colorado, class of 1879, providing for the award of a scholarship to a member of the junior class, selected by the President and Faculty, and amounting to

\$750 00

This fund is on deposit in the Bangor Savings Bank, as per Deposit Book No. 45603.

SCHEDULE C—ASSETS

Lands and Buildings:

Alumni Field, structures only	\$1,000 00
Alumni Hall	31,979 80
Campus and Farm Lands	11,000 00
Carnegie Library	50,985 06
Coburn Hall	28,203 80
Estabrooke Hall	6,000 00
Faculty Houses	26,235 65
Farm Buildings	25,230 14
Fernald Hall	30,000 00
Hannibal Hamlin Hall	55,707 62
Heating Plant	56,664 97
Horticultural Building	2,500 00
Infirmary	700 00
Janitor's House	1,000 00
Kappa Sigma House	5,400 00
Law Building (Bangor)	33,750 00
Locomotive House	200 00

REPORT OF THE TREASURER

9

Lord Hall	\$38,337 48
Mount Vernon House	3,500 00
Oak Hall	40,000 00
Observatory	500 00
Old Pumping Station	1,200 00
Power House	1,000 00
Stand Pipe and Fixtures	1,000 00
Stock Judging Pavilion	4,292 46
Store House	500 00
Store House	500 00
Theta Epsilon House	3,500 00
Waiting Room	226 97
Wingate Hall	25,143 93
Winslow Hall	45,207 85
Woodward Farm	3,000 00
	<hr/>
	\$534,465 73

SCHEDULE D—ASSETS

Inventories:

Advertising	\$537 12
Biology	7,858 43
Care of Buildings.....	34 50
Commencement	302 73
Chemistry	12,380 18
Civil Engineering	7,885 10
Commons	1,599 12
College of Agriculture:	
Postage, Printing, and Stationery.....	358 74
Sundry Supplies and Miscellaneous	451 15
Equipment	10,139 76
Cows	3,988 00
Horses	1,465 00
Poultry	752 75
Other Live Stock	953 00
Feed	413 60
Domestic Science	856 72
Bacteriology and Veterinary Science	2,566 60
Biological and Agricultural Chemistry.....	796 20
Diplomas	60 33
Economics and Sociology	45 00
Electrical Engineering	6,983 46
English Language	214 50
Forestry	1,256 00
Furnishings and Fixtures	8,296 93
Greek	1,463 05
Hannibal Hamlin Hall	2,938 19
History	111 00
Inn	2,303 30

Insurance	\$7,563 95
Latin	95 10
Laundry	406 34
Law School	1,422 00
Law Library	8,720 39
Library	52,437 93
Locker Account	680 00
Mathematical Science	4,257 25
Mechanical Engineering	20,702 35
Mechanics and Drawing	897 10
Military Science	312 00
Mount Vernon House	1,366 41
Museum	10,707 24
Oak Hall	143 03
Office Supplies and Postage	450 81
Pharmacy	261 24
Philosophy	347 75
Physical Training	1,642 80
Physics	7,145 22
Power, Heat, and Light:	
Coal	3,085 50
Supplies	861 30
Repairs to Buildings	177 10
Water Supply	129 36
	<hr/>
	\$200,817 63

SCHEDULE E—ASSETS

Accounts Receivable:

This account represents funds due the University as follows:

Students' accounts	\$7,795 48
Other general ledger accounts	2,437 55
	<hr/>
	\$10,233 03

SCHEDULE F—ASSETS

State of Maine, General Appropriation:

Amount due the University under the provisions of Chapter 269 of the Resolves of the State of Maine for the year 1909, and unpaid	\$9,352 16
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SCHEDULE G—ASSETS

Bills Receivable:

Represents notes held by the University as follows:

Eighty (80) promissory notes signed by present and former students, given in settlement of tuition fees, term bills, etc., and aggregating	\$1,801 58
Three promissory notes given by Building Association	2,500 00
	<hr/>
	\$4,301 58

SCHEDULE H—ASSETS

<i>Cash Balance, June 30, 1912:</i>	
On deposit, Merrill Trust Co., Bangor, Me.....	\$16 69
On deposit, Eastern Trust & Banking Co., Old Town, Me.	3 17
Cash at office (cash drawer)	862 89
	<hr/>
	\$882 75
Cash on hand, June 30, 1911	\$1,268 37
Total receipts for year	373,733 41
	<hr/>
	\$374,001 78
Total disbursements for year	373,119 03
	<hr/>
	\$882 75

SCHEDULE I—LIABILITIES

Bills Payable:

Law Building promissory notes—

Merrill Trust Co., Bangor, Due Sept. 1, 1913.....	\$28,750 00
Merrill Trust Co., Bangor, Demand	5,000 00

\$33,750 00

Promissory notes given for general purposes—

Merrill Trust Co., Bangor, Due July 15, 1912.....	5,000 00
Merrill Trust Co., Bangor, Due July 29, 1912	16,000 00

\$54,750 00

SCHEDULE J—LIABILITIES

Accounts Payable:

Summer Term, 1912	\$1,072 75
Key Deposit Account	5 00
Maine Agricultural Experiment Station	2,243 55
Audited Vouchers	22,366 19

\$25,687 49

STATEMENT SHOWING INCOME FROM ALL SOURCES

Income from Students:

Registration fees	\$5,800 00	
Tuition fees, general.....	\$15,299 00	
Tuition fees, College of Law.....	5,526 66	20,825 66
	<hr/>	
Incidental fees		11,455 00
Special fees for libraries, laboratories, de- grees, etc.		659 30
For dormitories	2,334 37	\$41,074 33

Income from Investments:

Endowment for general purposes (Coburn)	\$4,000 00	
Rents	2,409 54	6,409 54
		<hr/>

Income from Grants by State and Nation:

State:

Appropriation for current expenses and build- ings	\$101,500 00	
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Federal Aid:

Income from Land Grant—Act of July 2, 1862	5,915 00	
Additional endowments—Acts of Aug. 30, 1890, and March 4, 1907.....	50,000 00	157,415 00
		<hr/>

Income from Departments:

Civil Engineering	\$134 34	
Law Library	1,041 48	
Mechanics and Drawing	13 10	
Chemistry	477 45	
Bacteriology and Veterinary Science	264 80	
Biological and Agricultural Chemistry.....	31 68	
Furnishings and Fixtures	111 99	2,074 84
		<hr/>

Income from Other Sources:

College of Agriculture, sales	\$10,890 95	
Board of Students, Summer Term—1911...	61 59	
Law Building contributions.....	219 00	
Drill Hall contributions	50 00	
Equipment	61 42	
Other Live Stock account	40 50	11,323 46
		<hr/>
		\$218,297 17

STATEMENT SHOWING TOTAL EXPENDITURES

Salaries:

Salaries of officers	\$7,800 00	
Salaries of instructors.....	79,989 30	\$87,789 30
		<hr/>

Administration Expenses:

Advertising	\$581 92	
Clerk Hire	4,899 04	
Commencement	305 45	
Freight and Express	286 39	
Office Supplies and Postage.....	1,897 52	
Printing Reports and Bulletins.....	1,684 76	
Telephone and Telegraph	565 25	
Traveling Expenses	753 41	
Interest and Discount	1,255 57	
School Inspection	32 96	

Printing and Binding	\$194 17	
Miscellaneous	463 36	12,919 80
		<hr/>

Maintenance of Property:

Repairs to Buildings	\$6,041 93	
Care of Buildings	5,416 87	
Insurance	1,879 29	
Athletic Field	112 88	13,450 97
		<hr/>

Heat, Light, and Power:

Labor	\$3,794 78	
Repairs	50 81	
Supplies	3,763 26	
Electricity	1,613 52	
Coal	8,551 38	
Freight and Express	231 25	18,005 00
		<hr/>

Department Expenses:

Electrical Engineering	\$133 51	
Law School	8,434 06	
Library	1,324 19	
Mathematical Science	108 34	
Mechanical Engineering	18 81	
Military Science	68 40	
Museum	535 65	
Physical Training	264 95	
English Language	7 67	
Philosophy	25 20	
Pharmacy	16 64	
Biology	622 91	
Physics	228 42	
Shop	27 85	11,816 60
		<hr/>

House Charges:

Commons	\$706 67	
Inn	227 94	
Mount Vernon House	2 57	
Laundry	50 31	987 49
		<hr/>

College of Agriculture:

Salaries of Instructors	\$13,037 48	
Pay of Employees	9,181 74	
Farmers Week	73 53	
Forestry	381 84	
Horses	520 00	

Cows	\$145 00	
Poultry	21 25	
Feed	4,323 94	
Hay and Straw	140 20	
Fertilizer, Seeds, etc.	786 18	
Sundry Supplies and Miscellaneous.....	2,801 45	
Repairs	86 89	
Traveling Expenses	849 39	
Postage, Printing and Stationery	694 58	
Freight and Express	310 09	
Advertising	4 29	
Domestic Science	1,670 75	35,028 60
<hr/>		
<i>Sundry Accounts:</i>		
Summer Term, 1911	\$1,151 93	
Prizes	65 00	
Water Supply	4,273 57	
Profit and Loss	337 19	5,827 69
<hr/>		
Surplus		\$185,825 45
		<hr/>
		32,471 72
		<hr/>
		\$218,297 17

STATEMENT SHOWING HOW SURPLUS WAS EMPLOYED

Increased Assets:

<i>Plant—</i>		
Heating Plant	\$1,012 50	
Hannibal Hamlin Hall	493 41	
Law Building (Bangor).....	33,750 00	
	<hr/>	
	\$35,255 91	
<i>Less—</i>		
Waiting Room (burned)	50 00	\$35,205 91
	<hr/>	
Inventories, increased		6,149 24
Accounts Payable, decreased		18,719 16
		<hr/>
		\$60,074 31
LESS		
Accounts Receivable, decreased	\$9,924 12	
Amount due from State, decreased	16,851 42	
Bills Receivable, decreased	191 43	
Bills Payable, increased	250 00	
Cash on hand, decreased	385 62	27,602 59
	<hr/>	
Net increase in surplus		\$32,471 72

MAINE AGRICULTURAL EXPERIMENT STATION

STATEMENT SHOWING RECEIPTS AND EXPENDITURES JULY 1, 1911 TO JUNE 30, 1912, INCLUSIVE

	Adams Fund	Hatch Fund	General Fund	Inspection Account	Food Packing Inspection Account	Sardine Industry	Appropriation for Printing
Balance July 1, 1911.....	-	-	*\$1,087 09	*\$123 52	\$81 25	\$399 80	\$737 04
Total receipts.....	\$15,000 00	\$15,000 00	8,804 45	23,813 84	215 47	-	4,500 00
Totals.....	\$15,000 00	\$15,000 00	\$7,717 36	\$23,690 32	\$296 72	\$399 80	\$5,237 04
Expenditures.....	15,000 00	15,000 00	8,391 24	16,696 34	296 72	399 80	2,593 20
Balance June 30, 1912.....	-	-	†\$673 88	\$6,993 98	-	-	\$2,643 84

* Deficit balances June 30, 1911

† Deficit balance June 30, 1912

To the Trustees,
University of Maine

Respectfully submitted,
CHARLES J. DUNN,
Treasurer

REPORT OF THE PRESIDENT OF THE UNIVERSITY

To the Board of Trustees of the University of Maine:

I have the honor to present to you the following report:

It is a pleasure to call your attention to the growth of the institution. For a number of years this growth has been steady and regular. At present the total enrollment is in excess of 1000. It has long been the ambition of the University to reach the thousand mark. This ambition is now gratified. It does not follow, however, that the growth of the institution will stop with this figure. There is every reason to believe that the increasing interest in education will continue to bring, not only to the University of Maine, but to every college in the State, larger numbers of students each year.

It is a pleasure, also, to record the fact that the students are interested in their work, loyal to the best interests of the University and State, and ready to cooperate in every good work. The spirit of the University is one of loyalty, patriotism, and cooperation.

Very few changes have occurred in the faculty of instruction. The University is fortunate in having a hard working, well trained, and harmonious teaching force. The plan of organization provided by the Board of Trustees more than a year ago has resulted in economy of time and effort. It has also produced better work because it has fixed responsibility.

I desire to emphasize the recommendation of the Dean of the University concerning the needs of free tuition or of scholarships. As he so clearly points out, students coming to the University of Maine ought to have equal chance with those who go to privately endowed institutions. Ultimately, the University of Maine, in common with other state universities, ought to give free tuition to her own citizens. If this is not advisable at the present time, provision should be made for a considerable number of scholarships. The suggestion of Dean Hart that each state senator be allowed to appoint annually a scholar who shall receive free tuition seems to be a good and fair plan. This would in time give us 124 senatorial scholars.

The increase in attendance has made it necessary to add three instructors, two in agriculture and one in chemistry. It will be necessary to employ additional instructors next year. Already there is need of more help in the College Agriculture and in the Departments of Economics, English, French, and Education.

Dean Boardman in his report shows the need of equipment and instruction in hydraulic engineering. Certainly the conditions in Maine are such that the University ought to lead in the matter of preparing

hydraulic engineers and in providing a proper place for hydraulic testing. This matter should be carefully considered and proper provision should be made for carrying out Dean Boardman's suggestions.

Dean Stevens points out that a state university ought to have a well equipped department of geology. The need of the establishment of such a department is so evident that no argument will be made for it. It should be sufficient to point out the lack of provision for adequate instruction in this science.

In the employment of faculty members the University of Maine is in competition, not only with the other colleges of the State, but with all the colleges of the United States. A recent study of the salaries paid in the other colleges of New England and in state universities of the middle west, shows conclusively that the University of Maine is not paying salaries equal to those paid in other institutions of her class. Men can not be happy and contented in their work unless salary conditions are such as to allow them to live in a manner befitting the positions they fill. A very large number of the colleges with which we compete are upon the Carnegie Foundation. They can hold out to the men they employ the advantages of a retirement pension. A simple calculation will show that a non-Carnegie institution, to compete on equal terms with a Carnegie institution, must be able to pay from \$500 to \$800 more salary per year. Combine with the above facts the present high cost of living and it is clear that the University of Maine must make arrangements for very material increases in salaries if she is to maintain a high standard of excellency.

The need of additional equipment is very evident. The rapid scientific developments now going on make necessary the frequent renewal of instruments in Technology and Agriculture and the addition of much new apparatus. In order to bring our laboratories up to a high standard we need to spend at least \$10,000 for new apparatus. If we are to retain a high standard the annual appropriations for equipment should be at least 50 per cent. greater than in the past.

Modern education is making a larger use of the library than formerly. Students are expected to learn how to use books and to get from them the truths which they contain. If the student is to have the large opportunity needed, the library must be kept fully equipped with the newest and best books. Hence, the need, so clearly pointed out by Librarian Jones, is a real one. We ought to have at least \$5000 a year to spend for books and periodicals.

There is great and urgent need for a physical-chemical laboratory to accommodate the Departments of Physics and Chemistry. The present quarters are entirely inadequate. Chemistry is the one science which practically every student in the University of Maine must study. It is the foundation of much of the work in technology and agriculture. We need a modern building that will make it possible for every student coming here to receive the very best opportunities possible. We should have a building designed especially for the needs of Physics and Chemistry and costing at least \$100,000. The erection of such a building

would release Fernald Hall for recitation purposes and would solve some of the crowded class-room problems. It would also give needed space in Wingate Hall for Civil Engineering.

At present, 77 young women are in attendance at the University. The Mt. Vernon House, by crowding, accommodates 27. We are taking care of 10 at the University Inn. Others are compelled to live either at home, in Old Town, Orono, Bangor, or Stillwater, or to board in private families. The University ought to be able to take care of the girls who come here to study. They should have the same consideration as is given to the other sex, because they have the same right to seek an education. We need an addition to the Mt. Vernon House or a new dormitory. The needed accommodations, including proper gymnasium facilities, can be provided for about \$40,000.

Dean Merrill points out the need of a new dairy barn. This need is so urgent that argument for it is unnecessary. The University of Maine should have a dairy barn built according to the best modern theories and equipped with every needed convenience and labor-saving device; \$25,000 ought to build it.

Dean Boardman has shown that we ought to have a testing laboratory of the College of Technology. At present some \$18,000 worth of machinery and testing apparatus is set up in the old heating plant. The building itself is an eye-sore on the campus, and besides, is entirely inadequate and wholly unfit for the purposes for which we are compelled to use it. A unit building such as described by Dean Boardman could be constructed in place of the present old shack for \$15,000 or \$20,000. Such a building would provide space for testing apparatus and furnish proper housing for present machinery.

Due to the Bangor fire, it was necessary for the University authorities to find a place for the proper care of the College of Law. After very careful investigation, the building now used at Second and Union Streets was purchased. The purchase price was most advantageous. Of course it was purchased upon faith. Provision should be made to pay for this building, \$33,750 being the amount required.

As you are doubtless aware, our present appropriation ends with December, 1912. The Legislature should be asked to make an emergency appropriation of \$50,000 early in January to carry the University until June 30th.

For the running expenses of the University we should have an appropriation from the State of \$110,000 a year.

The General Education Board is now financing four directors of demonstration farming under the supervision of the College of Agriculture. This will result in much good, but it does not relieve the demand for general extension work. Provision should be made so that at least two men could be kept constantly in the field. An appropriation of \$5000 a year would take care of present needs.

Respectfully submitted,

ROBERT J. ALEY,

President of the University

REPORT OF THE DEAN OF THE UNIVERSITY

To the President of the University:

I have the honor to present the following report for the college years 1910-11 and 1911-12.

Freshmen admissions and the extent of the preparation of the candidates are shown in the following table, continued from my 1910 report:

Year	1904	1906	1908	1909	1910	1911
Regular freshmen	88	157	162	152	143	162
Average number of points offered	22.8	24.9	27.30	27.5	27.7	27.6
Percentage admitted without conditions	48	62	62	40	51	56
First year specials	27	17	21	6	9	12
Percentage of special students	23.5	10	11.5	4	6	7

No account is made here of students in the Short Pharmacy, or the two years Home Economics curriculum, or in the School Course in Agriculture, these admissions being administered by the Professor of Pharmacy and the Dean of the College of Agriculture, respectively. The number of points required for admission was increased from 25 to 27 in 1908 and to 28 in 1909. If the above table is compared with previous reports or catalogs, it should be remembered that the credit allowed for algebra has been changed from four points to three. This change is in harmony with the practice of the leading colleges, in fact of nearly all colleges outside of Maine.

The apparent sharp increase in the percentage of conditioned students shown in 1909 is explained partly by the increase of one point in the requirements and partly by the fact that, beginning with that year, we have classified as special students only those so registered who are over twenty-one years of age. On the whole, the figures show, I think, a gradual but material improvement in the preparation of our freshmen.

The following data regarding the work of the classes of 1914 and 1915 during their freshman year may be of interest as showing the effect of conditions upon the student's work. All first year students regarded as candidates for a degree are considered in four classes: (a) those admitted without conditions; (b) those who offered 28 or more points, but were conditioned in a required subject; (c) those who had conditions of one to four points, and (d) those with conditions of more than four points.

	(a)		(b)		(c)		(d)	
	'10-'11	'11-'12	'10-'11	'11-'12	'10-'11	'11-'12	'10-'11	'11-'12
Whole number	73	87	7	10	54	50	9	8
No. who completed the year without any "conditions"	37	45	2	5	10	19	2	2
Percentage without conditions	51	52	29	50	18.5	38	22	25
No. receiving one or more marks of "conditioned"	35	40	4	4	42	29	5	6
No. receiving one or more "failed"	22	15	0	3	25	10	3	2
Average number of semester hours of college work completed	33.7	34	31.0	33.0	30.3	32.7	28.5	30.1
Average rank first semester		80.0		77.6		78.4		76.0

It is difficult to tell how far the poor record of class (c) is due to insufficient preparation, and how much to the fact that a material fraction of their time was necessarily given to preparation for deferred entrance examinations. In most cases they had actually covered the full requirements in the preparatory school, but had failed to receive certificate rank, or to pass the entrance examinations. In many cases the deficiency was in subjects taken during the early part of the high school course and not continued in college, and some of these students if they could have given all their time to college work might have done as well as those in class (a). The record of those with excessive conditions (over four points) appears to show that their cases were carefully considered by the committee on admission, as their record is, on the whole, quite as good as that of class (c). It is to be recognized, of course, that the numbers here considered are not large enough to warrant drawing final conclusions.

ADMISSIONS CLASSIFIED BY SCHOOLS

Candidates were admitted in 1910 and 1911 from schools in Maine as follows, the figures first given referring to 1910:

Bangor 11-13; Bar Harbor 4-1; Belfast 3-1; Biddeford 2-4; Bluehill 1-1; Brewer 1-2; Bridgton Academy 1-1; Bridgton High 0-3; Bristol 0-1; Brunswick 0-2; Calais 0-3; Camden 1-1; Caribou 0-2; Coburn Classical Institute, Waterville, 4-6; Cony High, Augusta 3-2; Corinna Academy 0-1; Danforth 1-0; Deering 2-2; Dexter 0-3; East Maine Conference Seminary, Bucksport 1-1; Easton 1-0; Eastport 0-3; Edward Little High, Auburn 2-2; Ellsworth 1-1; Farmington 1-1; Fort Fairfield 1-0; Foxcroft Academy 1-4; Freedom Academy 0-1; Fryeburg Academy 1-1; Gardiner 1-0; Good Will 0-1; Gorham 0-1; Gould's Academy, Bethel 0-2; Hallowell 0-1; Hampden Academy 2-3; Hebron Academy 1-4; Islesboro 1-1; Leavitt Institute, Turner Center 1-1; Lewiston 0-4; Limestone 0-2; Livermore Falls 1-0; Madison 1-0; Maine Central In-

stitute, Pittsfield 2-2; New Gloucester 0-1; Newport 1-0; North Yarmouth Academy 7-2; Norway 0-2; Oak Grove Seminary, Vassalboro 1-0; Old Town 7-7; Orono 5-8; Oxford 1-0; So. Paris 3-2; Patten Academy 1-0; Portland 6-6; Princeton 0-2; Ricker Classical Institute, Houlton 0-1; Rockland 2-1; Rockport 0-2; Rumford 1-2; Skowhegan 1-0; Solon 1-1; South Portland 1-2; Thomaston 1-2; Thornton Academy, Saco 2-1; Waterville 1-0; Westbrook 2-1½; Westbrook Seminary 2-1; Wilton Academy 1-1; Winthrop 1-0.

(Schools outside of Maine:

In 1910:

Attleboro, Dorchester, Dean Academy, Westfield, Mass.; Berlin, N. H.; Hartford, Ct., and Trinity Chapel School, N. Y., two each; Boston Latin, Mechanic Arts, Boston, Concord School, Haverhill, Malden, Medfield, Methuen, Orange, Peabody, Reading, Somerville, Somersworth, Springfield Technical, Warcham, West Roxbury, Wilmington, Worcester (So.), Mass.; Milford, Milton, New Hampton, Phillips-Exeter, Rockland Military Academy, N. H.; Ansonia, Conn., Pawtucket, R. I., Erasmus Hall (Brooklyn), Columbia Grammar, Peekskill Military Academy, N. Y.; Ohio Military Institute, one each.

In 1911:

Beverly, Lynn, Malden, Salem, Somerville, Mass., Lock Haven, Pa., two each; Arlington, Boston Latin, Stone School (Boston), Framingham, Haverhill, Ipswich, Lowell, Melrose, New Bedford, Oliver Ames High, Peabody, Plymouth, Reading, Whitman, and Highland Military Academy (Worcester), Mass.; New Hampton and Phillips Exeter, N. H.; Chester, Hartford, Middletown, Conn.; Trinity Chapel, N. Y., and Conway Hall, Carlisle, Pa.—one each.

	1910	1911
Percentage of admissions from Maine schools...	70.4	78.3
Percentage from schools outside of Maine.....	29.6	21.7

Last year an investigation was made from the Secretary's records of the relative standing of students admitted to this University from different classes of schools. The figures are based upon the first semester college record of students admitted in the years 1905-1909.

CERTIFICATE BOARD SCHOOLS

Subject	Chemistry	French	German	Math.	English	Total
(1) No. taking	304	204	127	346	356	1347
(2) No. failing to pass	40	35	23	39	54	191
(3) Percentage of failures	11.6	14.6	15.3	10.1	13.2	12.4
	OTHER SCHOOLS					
(1)	135	83	45	142	143	548
(2)	17	21	7	20	17	82
(3)	11.2	21.9	13.5	12.3	12.3	13.0
	CERTIFICATE BOARD SCHOOLS IN MAINE					
(1)	215	149	90	250	256	960
(2)	31	23	19	31	42	146
(3)	12.6	13.4	17.5	11.0	14.1	13.2
	OTHER MAINE SCHOOLS					
(1)	103	66	32	107	103	411
(2)	14	17	2	15	12	60
(3)	14.9	20.5	5.9	12.4	10.5	12.7

It will be seen that when all the schools are considered the results from students from certificate-giving schools were, on the average, slightly better than from students entering by examination. For the Maine schools the case is reversed. The differences in each case, how-

ever, are so slight that we can only conclude that we have been just about equally successful in selecting our students by certificate and by examination.

NEW METHOD OF ADMISSION

The University of Maine was one of the eleven colleges that united in the formation of the New England College Entrance Certificate Board in 1901 and has for ten years admitted candidates upon certificate from only those schools approved by that Board. Our connection with the Board has been of great advantage to the University by giving us a standard recognized by all New England colleges. We believe that it has also been of distinct advantage to the Maine secondary schools. Our Faculty have never believed, however, that the Board could permanently furnish the best method of administering admission from Maine schools. During the past year, the University Faculty, after long consideration of the question, decided that as the State University we should recognize the schools and courses approved by the State Department of Education as furnishing college preparation, and admit their graduates upon their records.

Under the new system of admission, any graduate of a Class A school or academy who has passed in school all the specific requirements for admission to the curriculum he wishes to follow in college may offer, in making up his electives, any other work that has been credited toward his graduation.

Notice of the adoption of the new plan was sent to principals of all secondary schools shortly before the close of the school year.

I wish once again to call attention to the suggestion made in previous reports regarding scholarships. No questions occur more frequently in letters from prospective students than those regarding means of defraying expenses. Our curricula, especially in the College of Technology, are year by year becoming more difficult and it naturally follows that the average student cannot during the term find very much time for work that will bring in money. It is to be hoped that the State may soon adopt the plan of giving free tuition to all residents of the State who are prepared to pursue courses in its University. Tuition is already free in the agricultural courses. There seems to be no good reason why those who wish to fit themselves in the University to serve the State by teaching in her secondary schools, should not be treated equally well. A similar argument will apply to other curricula. In fact, it seems difficult to draw a line between curricula for which tuition should be charged and those which should be free.

Education at the State University should be at least as easy to obtain for any boy or girl as it is at any private college. If the State is not ready to grant free tuition to all Maine students, it is extremely desirable that a considerable number of scholarships, covering tuition—say \$60 per year, should be established. Each State senator might be given the right to appoint a scholar for each of the years of his own term of office. It should be provided that scholarships will be awarded only to can-

didates for admission who present credentials from an approved school, entitling them to admission without condition, or who pass with high rank examinations covering full admission. These provisions would tend to improve the preparation for college.

The year has been one of steady progress. Students have applied themselves earnestly and successfully. There have been but five cases of discipline. Competition between the fraternities for the inter-fraternity scholarship cup has been earnest, but good natured. This cup was won in 1909, 1910 and 1911 by the Beta Theta Pi, Alpha Tau Omega, and Phi Gamma Delta fraternities, respectively.

The average ranks of various classes of students for the calendar years, 1909, 1910, 1911 are given below:

	1909	1910	1911
Fraternity men	76.9	77.1	78.6
Non-Fraternity men	77.8	79.6	78.2
Fraternity women	85.2	86.1	86.6
Non-Fraternity women	84.9	85.9	83.4
Athletes			79.5
Freshmen	75.4	76.2	78.1
Sophomores	78.8	77.9	79.2
Juniors	79.0	80.3	79.2
Seniors	78.9	81.5	82.6

In some colleges fraternities are regarded as exerting a harmful influence. Here we believe that they are of real advantage to the University.

The plan recently adopted by the Trustees of gradually abolishing initiations of freshmen in fraternities, thus requiring them all to spend a year in the dormitory and to contribute something to the common life of the student community, will tend to prevent the objectionable features of fraternity life in some other universities from appearing here.

If this could be supplemented by the building of a Union, or University Hall, entirely for social and religious purposes, where all alike, student and professor, fraternity and non-fraternity men, could meet freely and informally the situation would be ideal. Such a building is coming to be recognized as very necessary for the best college life.

Respectfully submitted,

JAMES N. HART,

Dean of the University

REPORT OF THE DEAN OF THE COLLEGE OF AGRICULTURE

To the President of the University:

I have the honor to submit the following report of the College of Agriculture for the fiscal year just closed.

During the past year the College has again experienced a very substantial and satisfactory growth. The value of agricultural education is coming to be generally recognized and additional responsibilities are therefore placed upon the College. To foresee and to meet these responsibilities, as they arise, promptly and efficiently, is the duty of the College. Along with the increase in students has come an increased demand on the part of the farmers of the State for assistance in the solving of farm problems.

In this report the work of the College, both as relates to the teaching of resident students and to extension service, will be discussed.

STUDENT ATTENDANCE

In order that the significance of the increase in the number of students may be fully understood, statistics for the years 1907, 1909, and 1911 are herewith introduced.

Number of students registered in the various courses:

	1907	1909	1911
Four years curricula	66	115	141
Two years courses	21	43	61
Short courses	49	66	94
	136	224	296
Percentage of gain:		64.7	32.1

Distribution of students as related to residence:

Maine—

Androscoggin county	18
Aroostook county	8
Cumberland county	27
Franklin county	6
Hancock county	6
Kennebec county	14
Knox county	8
Lincoln county	2
Oxford county	21
Penobscot county	67
Piscataquis county	4
Sagadahoc county	5
Somerset county	16
Waldo county	14

Washington county	11	
York county	13	240
Other states		56
		<hr/>
Total		296

Percentage distribution of graduates from the four years and the two years courses according to present vocation:

Farming	64.8%
Agricultural teaching and experimentation	12.5%
State and U. S. Departments of Agriculture	4.7%
Agricultural editors	1.5%
	<hr/>
Total in agricultural lines	83.5%
Business	10.9%
Professions	3.1%
Unknown	2.5%
	<hr/>
Total	100 %

The above data carries with it information which has a very interesting and important bearing on the value and purpose of agricultural education. It sets forth plainly the fact that a very large proportion of the graduates of the College are making practical application of the training they have received.

DEPARTMENTS OF INSTRUCTION

With the growth of the student body the work and responsibilities of the various departments of instruction has increased proportionately. It is now evident that, within a year or two at least, extra instructors will be needed in nearly every department connected with the College. During the past year it was found necessary to employ student assistants in several of the laboratories.

The laboratories connected with the Departments of Agronomy, Bacteriology, and Biological and Agricultural Chemistry have been outgrown, and it will be necessary to make provision for accommodating a larger number of students during the next college year—either through increasing the size of the laboratories or the employment of additional teaching force. The horticultural and dairy laboratories will need to be enlarged soon.

EQUIPMENT

It has been found necessary to add materially to the laboratory equipment of the College along many lines. This is especially true of the horticultural, soil physics, dairy, and bacteriological laboratories. Such additions, however, are merely incidental, and bound to occur in any rapidly developing institution. It is unnecessary to state that the requirements in this direction will naturally increase from year to year.

SHORT COURSES

The increased attendance at the various short courses during the past year is worthy of mention. The total registration during 1911-12 was 99, representing a gain of exactly 50 per cent. These courses are offered for the benefit of persons who desire practical instruction in general agriculture, dairying, fruit growing, and poultry management, and who cannot afford the time necessary or who are not prepared to take either the two years or four years course in agriculture. Every indication points to a continued increase in the number of persons who will take advantage of these courses.

FARMERS' WEEK

The annual Farmers' Week was instituted six years ago. It aims to give a short course of practical instruction for farmers, farmers' wives, and children. It has been enlarged to meet the needs of the people in attendance, and is now given in three sections.

The annual meeting of the Maine Federation of Agricultural Associations, an association comprising 18 of the state and county wide agricultural organizations, held its annual meeting in connection with Farmers' Week, and constituted a very interesting feature of the program. It is understood that its next annual meeting is to be held in connection with Farmers' Week. The registered attendance at Farmers' Week was 430.

EZEKIEL HOLMES TABLET

At the annual meeting of the Maine Federation of Agricultural Associations held in 1911, it was voted to establish an Agricultural Hall of Fame in connection with the College of Agriculture, University of Maine, and to place in Winslow Hall, from time to time, a tablet in honor of some person who had distinguished himself or herself in the promotion of Maine agriculture. By unanimous vote the Federation decided to install the first tablet to the memory of Dr. Ezekiel Holmes, a former resident of Winthrop, Maine.

Dr. Holmes held during his life time many important positions, including Professor of Agriculture in the Gardiner Lyceum, Editor of the Maine Farmer, and Secretary of the State Board of Agriculture. The tablet was unveiled during Farmers' Week by the Association, with appropriate ceremony, and now rests in Winslow Hall as an inspiration to all students in Agriculture and visitors to the University.

ORGANIZATION OF AGRICULTURAL STUDENTS

During the year, the Maine Association of Agricultural Students was organized. This association is composed of past and present students in the College of Agriculture. It was formed for the purpose of co-operating with the College in investigating agricultural problems, with special reference to the economic production and marketing of farm

products, of conducting coöperative demonstrations, and advancing agricultural education. It has already reached considerable proportion, and is destined to take an active part in the agricultural development of the State.

CURRICULUM FOR TEACHERS OF AGRICULTURE

Agricultural departments have been established in several of the high schools and academies of the State, and already an active demand exists for teachers who have received a thorough agricultural training.

The College of Agriculture, recognizing that a new field for men trained in scientific agriculture is now opening and that a real need exists and must be satisfied, offers a four years curriculum for the preparation of teachers in Agriculture. This curriculum leads to the degree of Bachelor of Science in Agricultural Education.

LIVE STOCK

The live stock maintained on the university farm constitutes a very important part of the laboratory equipment of the College of Agriculture. In order that breeds and types may be effectually taught the students, it is necessary that a considerable number of the various breeds of the different kinds of live stock shall be maintained on the farm. Some additions have been made by the purchase of new stock during the past year. Improvement is constantly going on and the demand for stock from the college herds and flocks which has been increasing yearly, now considerably exceeds the supply. While it seems almost imperative that the herd of cattle should be increased at once, not only for student instructional purposes, but also that the University may have an ample supply of dairy products for use in the dormitories, it is impossible to do so without enlarging the present barn accommodations. The dairy herd now comprises the four leading dairy breeds—Jersey, Holstein, Ayrshire, and Guernsey; several of these breeds should be increased in number, and in addition it appears desirable from every standpoint that as soon as possible one of the representative beef breeds should be added.

EXTENSION WORK

Extension work has now come to be recognized as an important function of the College of Agriculture. This line of work was undertaken in response to a desire upon the part of farmers for assistance in solving the problems accompanying the business of farming. Each year the farmers of Maine have used this service more and more, and consequently the extension work has grown rapidly in volume and character. Very briefly the work of the past year along this line will be reviewed:

Lectures and Demonstrations.—All members of the instructional force are available for lecture and demonstration work. During the past year 226 lectures and demonstrations were given to 20,380 people. This

represents an increase of 60 meetings and of 4400 people in attendance over last year. These meetings were held under the auspices of local and county granges, farmers' clubs, agricultural fairs, cow test and breeders' associations, poultry associations, creamerymen's and dairymen's associations, boys and girls agricultural clubs, dairy institutes, field meetings, and boards of trade.

Coöperative Experiments.—Coöperative experiments are important forms of extension service and therefore this means of extension teaching has received considerable encouragement from the College of Agriculture. During the year 1911 experiments were confined principally to variety tests of corn, oats, and alfalfa. The number of tests made was 259, conducted on 187 different farms located in every county in Maine.

Correspondence Courses.—The College of Agriculture offers correspondence courses along eleven different lines, including nearly every phase of farming and home making. Since these courses were first offered in 1903 many hundred people have taken them. During the past year 130 people were enrolled as students.

Organization of Farmers' Clubs and Coöperative Associations.—The College of Agriculture believes thoroughly in the application of coöperation in the business of farming, and aims to give every possible assistance to farmers' neighborhood clubs, boys' and girls' agricultural clubs, coöperative breeders' associations, and fruit growers' associations, and to all forms of coöperative associations organized for marketing farm products economically.

Identification of Weeds, Plant Diseases, and Insects.—During the year a large number of weeds, diseased plants, and insects were received for identification. The College is especially well equipped for giving expert advice on the identification and eradication of weeds, the control of insect pests and plant diseases. Taking into consideration the actual menace which weed infestation is fast becoming to the farming interests of Maine, it is desirable that the College through its extension service shall assist so far as possible in the solution of this problem. During the coming year a definite program of education along these lines will be undertaken.

Extension Schools.—During the Easter vacation an extension school of four days duration was held in conjunction with the agricultural department of the East Maine Conference Seminary at Bucksport. Meetings were held during the afternoon of each day. Eight members of the Agricultural Faculty participated in this school. The attendance was very satisfactory. It is planned to hold several such schools during the coming year in various sections of the State.

Publications.—A monthly bulletin entitled "Timely Helps for Farmers" was published each month during the year. The following topics were treated:

- Poultry House Construction
- Lecture Courses
- Ideas in Breeding
- Root Crops

Orchard Renovation
Diseases of Swine
Scope and Nature of Domestic Science as Taught at
the University of Maine
Chick Feeding
Reforesting Waste Land
Orchard Spraying Equipment and Spray Calendar
Animal Feeding
Lice and Mites on Fowl

The mailing list for this publication is growing rapidly and it has been found necessary to increase not only the size of the publication, but the number of copies printed.

Correspondence with Farmers.—During the year letters of inquiry were received from many thousand farmers asking for expert advice in dairying, stock raising, the growing of crops, farm management, vegetable gardening, the treatment of sick animals, farm sanitation, the construction of farm buildings; in fact every line of agricultural endeavor. This phase of extension service is growing with enormous rapidity, and it has become necessary to employ extra stenographic help in order to care for the correspondence. The College welcomes this form of extension work and is prepared to give very careful attention to every inquiry received.

General.—There is one form of extension work which ought to be undertaken at once, the demonstration farm or demonstration plot. The College of Agriculture has already been requested by two state-wide associations to undertake this line of extension service, but it cannot do so to any extent with the funds available at the present time.

DEFINITE NEEDS

While I might speak of many needs which the College of Agriculture is experiencing as the result of its rapid development, there are two which on account of their very great importance should be brought specifically to your attention.

First: Cattle and Horse Barns.—The present cattle and horse barns are unsanitary; are of insufficient size to accommodate the live stock that should be kept on the university farm; are not planned for economizing labor; do not represent a type that could be recommended to the farmers of the State, and are therefore unsatisfactory for instructional purposes with the students of the College. Nearly two years ago the Maine Dairymen's Association and the Maine Live Stock Breeders' Association—having among their membership leading and progressive farmers of the State—appointed special committees to investigate the condition of the barns on the university farm. These committees visited the farm, inspected the buildings, and made reports to their respective Associations, recommending that the Associations take immediate action to secure special appropriation from the State for the purpose of such additions and such renovations to the barns as might be necessary to make them into model dairy and horse barns.

The above reports will be found in the Annual Report of the Maine Dairymen's Association printed in the 1910 report of the Maine Department of Agriculture.

Hundreds of people visit the university farm each year for the purpose of inspecting the farm buildings, and it is especially desirable from the standpoint of agricultural development in the State that they shall be able to find here model farm buildings representative of the best type in convenience, durability, sanitation, and economic construction.

Second: *Extension Work*.—The extension work of the University has grown to such magnitude that it is impossible to meet the requests for assistance now being received from the farmers and farmers' organizations of Maine without definite and ample appropriations for the purpose. Hundreds of requests were made during the past year which the College was unable to grant. The forms of service now being carried on should be extended, and new lines dealing with the multitude of practical farm problems, and for the solution of which a real need exists should be undertaken. Actual demonstrations upon the farms of Maine, conducted by the farmers themselves with the College assisting and advising, are the most important and resultful form of extension work; wherever undertaken they have resulted in increased crop production and in redirection of farming methods. A specific appropriation sufficient in amount to enlarge the present lines of extension work and to begin the demonstration farm work in a permanent way should be provided.

Respectfully submitted,

LEON S. MERRILL,

Dean of the College of Agriculture

REPORT OF THE DEAN OF THE COLLEGE OF ARTS AND SCIENCES

To the President of the University:

The College of Arts and Sciences in a university like ours has a two-fold function: (1) A large number of students who pursue technical and agricultural curricula look to this College for their general or cultural subjects. In most curricula a liberal allowance of time is devoted to subjects other than those that bear directly upon the general purpose to be accomplished. This being the case, it follows that by far the greater amount of time of the instructors in the College of Arts and Sciences is devoted to giving instruction to students in other colleges. Estimated upon this basis, this College is by far the largest in the University. (2) Apart from its obligations to the students of the other colleges of the University, the College of Arts and Sciences is chiefly concerned with the offering of courses lying along the various liberal and cultural lines designed to train students for a broad appreciation of the fundamental subjects which are by common consent regarded as essential to a liberal education. Estimated upon this basis the College is numerically small. Last year's catalog showed a registration of 196 students in the College of Arts and Sciences.

During the past year a somewhat radical change was made in the requirements for the Bachelor of Arts degree. The outline of these changes has been presented to you in a former report. The College has held faculty meetings once each month; it has conducted a general lecture course in charge of the Professor of Biology, and a similar course is being given this fall semester in the charge of the Professors of History, and Economics and Sociology; it has conducted regular meetings of the Arts Club; and has published an attractive bulletin of information to students.

NEEDS

Buildings

In making an estimate of the needs of the College of Arts and Sciences for the next two years, I have been aided by suggestions from the heads of the various departments. I find that the demand for more recitation rooms is a strong and proper one. Only four professors in this College have offices which they can use for consultation purposes. Most of the other professors have no lecture-rooms which they can command at periods when they are not using them with their own classes. The proposed science building for the Department of Physics and

Chemistry would in my judgment meet the needs of the University along this line. A general plan of arrangement need not be outlined here. It is sufficient to say that the departments, French, German, Economics and Sociology, Education, History, and Mathematics, would be materially aided by the erection of such a building.

Next to this building, the one most needed is, in my judgment, a Woman's Building, as there has been a rapid increase during the last two years in the number of women in attendance so that the Mount Vernon House is entirely inadequate for their accommodation. If a substantial Woman's Building were to be erected on the campus, it would afford tangible evidence that we are willing to give the young women of Maine an opportunity equal to that of the men.

Another building which should be provided in the near future is an Arts Building for recitation rooms, offices, etc. The Science Building mentioned above will afford only a partial relief to such departments as History, Education, French, German, and Economics. Estabrooke Hall affords a temporary relief for the crowded classes in English, but it is now over-crowded and it is reported as unsatisfactory by the head of the department.

Material Equipment

There is a large demand from the heads of the various departments for a material increase in the appropriations for department equipment. The Departments of Physics and Biology have had during recent years only an amount sufficient to carry on the necessary work of the classroom and laboratory. In order to make satisfactory progress these departments should have an appropriation of \$1000 each for the next two years. Professor Chrysler gives me a list of apparatus which would seem to be necessary for the growth of his department. So much is being done at present along the lines of radio-activity, wireless telegraphy, etc., that it would seem to be desirable that the Department of Physics in a state university should be well equipped in these subjects. If we are fortunate enough to get the desired Science Building, it will be necessary for us to make a liberal appropriation for its equipment. Some years ago an excellent start was made by Professor Huddilston along the line of an art collection. During recent years very little has been added to this collection, and it would seem that an appropriation to bring the collection up to date would be desirable. The material equipment of the Department of Latin is very weak. During the seven years that the present Professor has occupied his position nothing has been added to the department by the way of illustrative material. Maps, photographs, casts, slides, etc., are very much needed, as well as an increased appropriation for books for the department. This department is at present turning out so many teachers for our Maine high schools that it would seem to be desirable to give it as good an equipment as we are able. The Professor of English asks for \$200 for lantern slides and other illustrative material.

Books

Practically all the professors of the College agree that our present appropriation for books is entirely inadequate. \$100 to \$150 per year is the amount mentioned for most of the departments. Several heads of departments ask for a considerable sum in order to put their departmental libraries on a good working basis. The Departments of Latin, History and English are particularly urgent in making this request.

Teaching Force

In the teaching force of this College, several additional instructors have been asked for. An assistant professor for the Department of Economics and Sociology would seem to be the most necessary. This has already been mentioned in a previous report. Professor Huddilston suggests the propriety of obtaining an assistant professor of Architecture. His work together with the courses given in the Department of Greek and Classical Archaeology would form the basis of a course in Architecture which would give the student two years of the work required for a degree by such institutions as the Massachusetts Institute of Technology. For many years it has been thought desirable to secure the services of a professor of Geology when the means were available. It is somewhat unusual for a state university to be without a fully equipped department of Geology. Professor Chrysler asks for an instructor in Entomology and the increasing number of students in that department and the increased registration in his courses next year would warrant such an addition if our resources permit. Professor Segall wishes to develop the Department of Romance Languages by offering several advanced courses. This would seem to be a desirable thing to do, if the work in the elementary courses could be kept up to good grade at the same time. Professor Gray asks for an additional instructor in English, and states that the registration in his department makes this request a reasonable one. Professor A. J. Jones asks for a lecturer in Education. It is hoped that this may be arranged for along the lines we have already discussed.

Respectfully submitted,

JAMES S. STEVENS,

Dean of the College of Arts and Sciences

REPORT OF THE DEAN OF THE COLLEGE OF LAW

To the President of the University:

I beg leave to submit the following report of the College of Law covering the college year 1911-12:—

The registration of the College of Law for the past College year is 113, as against 101 at the beginning, and 107 at the end of the year 1910-1911. The men are classified as follows: Graduate Students 28, Seniors 16, Juniors 17, First Year Men 31, Special Students 21. The number of new men in the school at the end of the year was Graduate Students 1, Seniors 1, Juniors 1, First Year Men 31, Special Students 10, or 44 new men in all.

The different counties of the State were represented as follows:—Androscoggin 1, Aroostook 5, Cumberland 17, an increase of nine men as against last year, Franklin none, Hancock 4, Kennebec 4, Knox 3, Lincoln 1, Oxford 1, Penobscot 24, an increase of five, Piscataquis 1, Sagadahoc 1, Somerset 1, Waldo 1, Washington 9, York 2, or 74 men in all, an increase of twelve men over last year.

The different states were represented as follows:—Massachusetts 19, New Hampshire 5, Connecticut 3, Vermont 6, New York 2, and Illinois, Pennsylvania, California and China 1 each, making in all 39 men from outside the State of Maine.

The different colleges and universities were represented as follows:—Maine 6, Bowdoin 3, Colby 2, Bates 1, St. Mary's 2, and Dartmouth, Brown, Colgate, St. Joseph's, Kansas City University, and Oxford University, in England, by 1 each, or twenty in all, an increase of 3 over last year. There were twenty-three men that had a partial college education. Of these Maine had 11 representatives, Bates 3, Colby 2, Harvard 2, Bowdoin 1, Colgate 1, Dartmouth 1, Amherst 1, and Vermont 1, an increase of 8.

The different law schools had representatives in the College as follows: Boston University Law School 2, Ohio Northern University 1, Illinois College of Law 1, and Albany Law School 1, or five in all.

At the Commencement last June the degree of LL. B. was conferred on fifteen men, and the degree of LL. M. on two. Considering that this graduating class started with a membership of about 30 men, this fact would go to show that the standard of the College of Law has not been lowered, but has been maintained and advanced.

In the bar examinations of the State of Maine held this year in August, all the graduates of the University of Maine College of Law that took them passed successfully, without a single exception, as did

also all but one of the special students, not graduates of the College. As compared with graduates of other law schools, our men continue to maintain the high standing for which they have become noted in previous examinations.

At the end of this year one member of the faculty, an assistant professor, was made a professor in full standing, and two instructors were raised the one to the rank of associate professor and the other to that of assistant professor.

According to the vote of the Board of Trustees, graduate study *in absentia* will wholly cease two years from now, and no new applications for registration have been accepted since June 12th.

According to the recommendations made in my last report, the sale of law books at the College of Law will be taken over by the University Store some time in September. The profits, if any, are to go in aid of the athletic association.

That General Charles Hamlin's name will not soon be forgotten by the students and friends of the College of Law is evident from the fact that on the 15th of May of this year, on the anniversary of his death, a delegation of students, in the name and on behalf of the senior class, placed flowers upon the grave of their teacher and friend in Mount Hope Cemetery. A memorial article on General Hamlin appeared in the May number of the Maine Law Review. General Hamlin's place as Lecturer in Bankruptcy Law has been taken by John R. Mason, Esq., a Referee in Bankruptcy and a graduate of Harvard College and the Harvard Law School.

In the death of Forest J. Martin, Lecturer on Common Law Pleading and Maine Practice, who passed away during the spring term, the College has sustained a great loss. His lectures on Common Law Pleading have been dedicated by his widow, Mrs. Clara J. Martin, to the University of Maine College of Law. The profits accruing from their publication, if any, are to be used for the benefit of the Maine Law Review.

The Maine Law Review, the law magazine published by the student body of the College of Law, has completed the fifth year of its existence. It continues to improve in quality and to gain in reputation.

In the death of Honorable Henry Bradstreet Cleaves, of Portland, a former governor of our State, the Advisory Board for the College of Law has lost one of its most prominent members. His death, and that of General Charles Hamlin, have created two vacancies on the Board, to be filled by the Trustees at their next meeting.

The purchase of the Law Building by the Board of Trustees has been the most notable event in the history of the College of Law. This purchase has also created the greatest need of the College: the discharge of the obligation incurred, and the acquisition of this beautiful property free from debt of any kind.

Respectfully submitted,

W. E. WALZ,

Dean of the College of Law

REPORT OF THE DEAN OF THE COLLEGE OF TECHNOLOGY

To the President of the University:

I have the honor to present herewith my annual report of the College of Technology for your consideration.

This College offers curricula in Chemistry; Chemical, Civil, Electrical, and Mechanical Engineering, and Pharmacy. The Department of Mechanics and Drawing, containing required engineering courses, also belongs in this College. It is of interest to note the establishment of these curricula. Chemistry, Civil, and Mechanical Engineering are nearly as old as the University, while Electrical Engineering and Pharmacy were established in 1894, and Chemical Engineering in 1907. The faculty of this College numbers 23, of whom 12 are of professional rank. Instruction has been given during the year by this faculty to over 1500 students in the various courses making up the curricula. The number receiving the Bachelor's degree last June was 50.

During the past year, the work of perfecting the College as an organized unit of the University has been carried forward with success. Although excellent work has been done in previous years when each department was acting more or less independently, the present scheme of coöperation will surely result in much better economy and a pronounced improvement in the work.

Last spring the College edited a bulletin of 44 pages which was published by the University, through which an endeavor was made to place before the young men in fitting schools the true meaning of a technological education, and to make clear to them some of the points about which there has been so much haziness in the past. Many young men pursue an engineering curriculum because there is a certain glamour or mystery about it which is attractive, without understanding for what the different curricula stand.

Not only does the high school student have peculiar ideas of a technical education, but the people of the State, as a rule, have many erroneous views. The University exists for the people; the maximum efficiency cannot be obtained without coöperation between the people and the University. It is mainly the fault of the institution that there exists any mystery about our work and it should be one duty of the faculty to correct such fallacies. This can be accomplished in a small way by lectures and talks before clubs as well as in our everyday life, but a more effective way is by an organized effort in developing extension work. In this way we not only show the people the educational side of our institution, but we assist them in solving their engi-

neering problems and show them the meaning of expert advice. Two points must, however, be considered. Our first duty is to the student and he must not be neglected. Neither should we usurp the rightful business of others. These two difficulties will surely appear and if not carefully controlled they will work much harm. The first objection may be obviated by providing a faculty sufficient in size to meet the demand. The second may be controlled by a judicious handling of the problems which arise, with a careful decision of where our services end and those of others begin. If properly administered, this will result in an increased demand for the technical expert which will mean increased business for engineers and chemists throughout the State.

During the year, an organized effort has been made to get in closer touch with the graduates of the College. This has taken the form of an employment and statistical bureau. Much interest has been shown by the New York alumni who have given their assistance to the undertaking. Letters have been sent to about 1000 graduates and their replies have been hearty and full. A branch of the bureau is already in existence in New York City, and it is expected to establish branches in other cities during the coming year.

Much has been accomplished by the student organizations, comprising the Civil Engineering Society, and the Mechanical and Electrical Society. Trained men have been obtained from away to lecture to these bodies and much interest has been shown by the students in these meetings. In general these men have come to us for no fee other than their expenses, and usually these expenses have been borne by the students.

A number of the faculty of this College have attended scientific meetings during the year in New York, Boston, Chicago, and other centers. This is creditable and the custom should be encouraged. Another field of work which needs encouragement is the writing and publication of scientific papers, containing results of tests and investigations carried on by the different departments.

The work of the College has always been retarded owing to lack of funds for instructors and equipment. It is only by the most strenuous efforts in each department that a high quality of work has been maintained. Extra hours have been necessary by all the faculty, and make-shifts for equipment have been in constant use. We have arrived at a critical point in our history where it seems impossible to advance further without much new equipment for all departments. So many institutions are spending immense sums upon buildings and their equipment that our position will rapidly fall behind unless we are given the support necessary to keep our faculty and equipment up to the standard. A first class professional man will not stay long where he is prevented from doing first class work by lack of the necessary facilities.

The crowded condition of the three buildings in which this College is housed is such as to demand relief. Lord Hall contains the two departments of Electrical and Mechanical Engineering. The building is poorly designed for laboratory and testing space. All of the engineering curricula demand a building suited to this work and it is essential

that such space should be provided. The head of the Department of Mechanical Engineering has perfected plans for a unit building to contain laboratories and testing machinery, and it is hoped that in the near future such a building may be provided. This would insure the beginning of an engineering experiment station which would be invaluable to this College and to the State.

The Electrical Engineering Department needs much apparatus to equip a standardizing laboratory for the purpose of carrying on standard electrical engineering tests. Also much of the equipment in its general laboratory is old and not up-to-date. It will be necessary to spend several thousand dollars here if we are to bring the students in touch with practical commercial apparatus of the day and keep the laboratory up with the latest practice.

The State of Maine is noted for its water power and ranks third in the Union for developed power. It is possible to develop nearly three times as much, hence the question of hydraulic development is a vital one in the development of our State. A hydraulics laboratory should be provided, consisting of a power house equipped with the necessary machinery, for the use of the engineering departments. This should be located upon its power site and be under the direction of an experienced hydraulic and electrical engineer. It is worthy of note that such a plant could easily be made second to none in the country and would be used not only for instructional and experimental work, but would become of much value in commercial testing.

Respectfully submitted,

HAROLD S. BOARDMAN,

Dean of the College of Technology

REPORT OF THE LIBRARIAN

To the President of the University:

During the two-year period covered by this report, the increase in the General Library has been 4,697 volumes, the Law Library 187, and the Maine Agricultural Experiment Station Library 433, a total of 5,317, making the record stand, on June 30, 1912, General Library 40,624, Law Library 3,482, and Station Library 3,594, an aggregate of 47,700.

It may be of interest at this time to call attention to the fact that when the present Librarian began his duties, in 1897, the total number of volumes was 10,548. Although there have been some fluctuation in the rate of growth, it has been constant and on the whole gradually increasing. In 1897-8 it was 2,008; by two-year periods since, the growth has been as follows: 1898-1900, 4,409; 1900-2, 4,316; 1902-4, 3,981; 1904-6, 3,921; 1906-8, 7,096; 1908-10, 5,307; 1910-12, 5,317; total 1897-1912, 37,152.

The increase in the use of the Library has kept pace with its growth and that of the number of students and faculty. It has been noticeably greater the past year than ever before.

Last fall the Librarian talked to five divisions of the freshman class twice a week for four weeks on the use of the Library. As most freshmen have almost no knowledge of this subject, such talks seem necessary.

GENERAL LIBRARY

Of the 4,697 volumes added to the General Library in 1910-12, 1,666 were secured by purchase, 819 by binding, and 2,212 by gift. The cost of the purchases was \$3,305.19 and of the binding \$583.60.

The division of the purchases by departments was as follows; College of Agriculture (including its nine departments), 252 volumes, \$431.71; Bibliography, 28, \$101.80; Biology, 47, \$154.69; Chemistry, 49, \$129.05; Civil Engineering, 61, \$205.96; Economics and Sociology, 70, \$117.07; Education, 140, \$179.49; Electrical Engineering, 42, \$153.75; English, 302, \$340.83; German, 45, \$57.34; Greek and Classical Archæology, 18, \$41.48; History, 91, \$142.68; Latin, 22, \$77.92; Mathematics and Astronomy, 37, \$67.99; Mechanical Engineering, 46, \$160.31; Mechanics and Drawing, 26, \$45.24; Military Science and Tactics, 0; Pharmacy, 0; Philosophy, 50, \$86.66; Physical Culture and Athletics, 3, \$5.51; Physics, 30, \$81.52; Romance Languages, 84, \$86.69; General and Miscellaneous, 133, \$317.43; Reference, 62, \$313.98.

The cost of our periodical subscriptions for two years has been \$1,534.43. The number and cost by departments for 1911-12 was as follows: College of Agriculture, 23, \$43.35; Bibliography, 7, \$15.00; Biology, 14, \$77.70; Chemistry, 13, \$77.01; Civil Engineering, 5, \$15.45; Economics and Sociology, 8, \$23.55; Education, 7, \$16.25; Electrical Engineering, 7, \$29.85; English, 2, \$5.25; German, 4, 1-2, \$24.07; Greek and Classical Archaeology, 4, \$11.13; History, 3, \$14.80; Latin, 4, \$11.12; Mathematics and Astronomy, 6, \$19.65; Mechanical Engineering, 9, \$32.45; Mechanics and Drawing, 0; Military Science and Tactics, 3, \$8.25; Pharmacy, 7, \$10.82; Philosophy, 10, \$36.70; Physical Culture and Athletics, 2, \$3.60; Physics, 5, \$31.55; Romance Languages, 2 1-2, \$10.58; General and Miscellaneous, 74, \$246.56. The total number of periodicals subscribed for is 220, and of those received by gift about as many.

The list of individuals who have made gifts during the last two years is too long to give here. The largest and most valuable gift we have ever received was the horticultural library of the late Professor Welton M. Munson, Professor of Horticulture and Horticulturist in the Experiment Station from 1891 until 1906. This came to us in accordance with a provision of his will. Another gift of special importance was from Nathan C. Grover, class of 1890, consisting chiefly of civil engineering works. Other individuals whose gifts require special mention are President R. J. Aley, Director C. D. Woods, and Mrs. A. M. Graves of Orono. As a designated depository, we have continued to receive all publications of the United States Government included in the depository series. We have continued to receive also the publication of the State of Maine, through the State Library, and of the states of Connecticut, Ohio, and Michigan, through their State Libraries, in accordance with an exchange system arranged by the late Hon. L. D. Carver while State Librarian of Maine.

Two deposits of book have been made in the Library, although in neither case has the title passed to us. These are the mathematical library of President Aley, and a considerable portion of the library of Professor Horace M. Estabrooke, class of 1876, who was Professor of Rhetoric and Modern Languages here from 1891 until 1895 and of English from 1895 until his death in 1908. The Aley Library has been completely cataloged and the Estabrooke Library partially so; it is hoped this work will be completed soon.

LAW LIBRARY

The Bangor fire of April 30, 1911, destroyed the Exchange Building, in which the College of Law was located. The Law Library, with the exception of six volumes which were temporarily in the hands of members of the faculty, was totally destroyed. Strenuous efforts to save it were made by eleven students who succeeded in carrying some of the most valuable sets from the sixth floor, where the books were, to a vault on the second floor. They worked until the exits were choked by fire and several of the number had to jump from windows in order

to escape the flames. Faulty construction of the vault resulted in the destruction of its contents, but the effort by the students to save the books is none the less deserving of grateful recognition.

The Law Library was well insured, and from the insurance the Librarian was authorized by the President and Treasurer to expend \$7,887.06 in the purchase of a new library. The needs of the College were carefully considered by the law faculty and their recommendations were carried out in full. Special fire prices were made by the Lawyers Coöperative Publishing Company, the West Publishing Company, and the publishers of all other sets destroyed which had been bought directly from the publishers. Very advantageous prices were obtained on the miscellaneous sets and text books. As a result, there was purchased a better library than that destroyed, the expense being kept under the amount authorized. The new library was catalogued and installed in the new quarters of the College so that it was ready for use at the opening of the fall term of 1911.

Of the 3,482 volumes now in the Law Library, 2,914 have been secured by purchase and 568 by gift. Following the fire, gifts were received from the Boston University, Harvard, and John Marshall law schools and the American Bar Association. General Thomas H. Hubbard of New York sent a check for one hundred dollars which was used toward the purchase of a set of Federal Cases. Within the last year, a gift of over a hundred volumes has been received from Eliot N. Jones, Esq., of Boston, a native of Bangor. Hon. L. C. Southard of Boston has continued to turn over to the Treasurer of the University the honorarium received by him for his services as Lecturer on Medico-Legal Relations. A portion of the amount on hand is to be used in payment for a set of English Ruling Cases that has been ordered.

MAINE AGRICULTURAL EXPERIMENT STATION LIBRARY

No details of the Station Library other than the figures relating to its growth are given in this report. The books received by it are recorded and catalogued in the General Library and supervision is exercised over binding and periodical records. Neither the orders given nor the bills go through the Librarian's hands. As a result, there is an occasional duplication of books by the Station and the General Libraries, but this is not serious. During the last year a duplication in periodicals has been discontinued.

NEEDS

The General Library should have for the next two years not less than five thousand dollars a year for books, periodicals, binding, and necessary supplies. This does not include salaries or the amount required for physical equipment and maintenance. The sum named will allow two thousand dollars a year for periodicals, binding, supplies, and reference and other general and miscellaneous books, and an average of a hun-

dred dollars a year for each of our thirty departments of instruction to be used for current books and others required.

Additional stacks will be required within the next two years and should be installed within a year. If built of the same materials and in the same style as those in the present stacks they can be placed in the stack extension when built. They can be placed temporarily in the club room, or one of the other large rooms, and later transferred, so as to restore the room taken to its original use. Such stacks will cost in the neighborhood of seven hundred and fifty dollars.

The needs of the Law Library will be cared for by a continuation of the assignment of that portion of the tuition charge for the purchase of books which is now authorized by the Trustees. There is, however, need of the appointment of a regular assistant who shall be in immediate charge, under the direction of the Librarian.

Respectfully submitted,

RALPH K. JONES,

Librarian

REPORT OF THE PROFESSOR OF PHYSICAL CULTURE

To the President of the University:

I have the honor to submit my report as Professor of Physical Culture and Director of Athletics.

We have endeavored during the past year to improve the Physical Culture Department of the University. In the past, physical training has been required of freshmen only, and consisted of three hours a week gymnasium work. We now have three hours a week gymnasium work and a one hour a week lecture (practical hygiene) for all freshmen, and have an elective course of three hours gymnasium work a week and two hours a week lectures. One hundred and seventy-five first year students were registered for work in this Department, and thirty-five upper classmen took advanced work.

The University was fortunate in athletics the past year, winning State championships in football and baseball, and losing in track only by a few points. A cross country race was won from Tufts College in the fall, and a dual meet with Colby in the Spring.

The work of the department would be greatly improved if a suitable drill hall could be erected for military purposes, thus giving the Gymnasium for physical work only. A swimming pool also would be of great help to the Department.

The time is not far distant when the University of Maine should have a four-year course in Physical Culture. Cities and public schools are demanding men trained in this line of work. With the additional help of an assistant, such a course could be established at the University of Maine.

Respectfully submitted,

E. R. WINGARD,

Professor of Physical Culture and Director of Athletics

REPORT OF THE DIRECTOR OF THE MAINE AGRICULTURAL EXPERIMENT STATION

To the President of the University:

In addition to the work of investigation of all agricultural experiment stations, the Director of the Maine Station is charged by law with the enforcement of the laws regulating the sale of agricultural seeds, apples, commercial feeding stuffs, commercial fertilizers, drugs, foods, fungicides and insecticides, and with the calibration of creamery glassware. Because of this it is necessary to organize the Experiment Station in two distinct divisions,—one having to do with the work of inspection, and the other with the work of investigation. Outside of the executive office these two general divisions of the Station do not overlap.

THE WORK OF INSPECTION

During the year the inspectors have visited a large percentage of the places of business of people engaged in the manufacture and sale of articles coming under the requirements of the laws. A sanitary inspection has been made of many hundreds of stores, manufacturing establishments, bakeries, hotel and restaurant kitchens, etc. Many very unsatisfactory conditions have been found, but these for the most part have been cleaned up without prosecution. The unsanitary conditions were for the most part due to ignorance or to carelessness and the majority of the owners have complied not only willingly but have apparently accepted the criticisms as helpful to their business rather than injurious. The analysts have examined many hundred samples during the year. The "Official Inspections" of the year give in considerable detail the report of the work of inspection.

THE WORK OF INVESTIGATION

The work of investigation is divided into the Departments of Biology, Entomology, and Plant Pathology. Within the limits of this report it is possible only to briefly catalogue the more important lines of work in the departments.

Biology. The following titles of publications indicate the work which has been completed during the year:

Biometric Ideas and Methods in Biology: Their Significance and Limitations; Inheritance of Fecundity in the Domestic Fowl; The Mendelian Inheritance of Certain Chemical Characters in Maize; An

Accurate Method for Determining the Weight of the Parts of the Eggs of Birds; Biometric Arguments Regarding the Genotype Concept; The Personal Equation in Breeding Experiments Involving Certain Characters of Maize; On the Accuracy of Trapnest Records; A Note on Certain Biometrical Computations; Breeding Poultry for Egg Production; Poultry Diseases and Their Treatment; A Note Regarding Variation in the Single Combs of Fowls; Some Recent Studies on Variation and Correlation in Agricultural Plants; Opportunities for Corn Breeding in Maine; Poultry Notes.

The work in breeding with field corn and with sweet corn is continued. Breeding work with oats, including variety tests of many varieties, and the isolation and propagation of pedigreed strains of oats, is continued.

The poultry work of the Department of Biology attracts more attention than any other line of work which the Experiment Station is engaged upon. The work of breeding for egg production has continued through the year with results which are highly satisfactory. The system of breeding, based on the ability of the birds to transmit high laying qualities to their offspring rather than on performance alone, continues to bear out the promise of good results. A study of the factors concerned in egg production affecting the size, color, and shape of eggs, and the part played by each portion of the oviduct in the formation of the egg, has been continued. Extensive experiments in making reciprocal crosses between Barred Plymouth Rock and Cornish Indian have been continued through the present season. This line of work is yielding results of great interest and importance in regard to fundamental laws of inheritance and for the foundation of practical breeding work in general.

Maine stands fourth among the states in bean production. One of its most valuable products is the old-fashioned yellow-eyed bean, but growers of this bean say that it is impossible to get a strain of seed which uniformly breeds true, and at the same time is resistant to disease. An experiment is in progress to see if it is not possible with the application of modern scientific principles of breeding to isolate a strain of old-fashioned yellow-eyed beans which shall have the power of breeding true indefinitely.

In connection with the work of the Department of Biology both in plant breeding and in poultry investigations, a large amount of data has been accumulated. These results are being put into shape for publication as rapidly as possible.

Entomology. The following publications have been issued by this Department:

Macrosiphum destructor and *M. solanifolii* (two species of plant lice enemies of the potato and the pea); Insect Notes for 1911; Fungus Gnats, Parts III and IV (dealing with a family of small flies whose maggots injure mushrooms); Notes on Psyllidae or "Jumping plant-lice" (sucking insects which injure plants in much the same way as aphids).

The investigations of the Aphidae (plant lice); fungus gnats; studies of the earlier stages of Diptera (two-winged flies) with special reference to the economic species such as maggots infesting the apple, potato, and cabbage beetles, etc.; the comparison of two very destructive plant lice, the pea aphid and the potato aphid, are in progress. The work of a popular nature being carried out has to do with the insects injurious to potatoes and garden crops, parasitic and other beneficial insects, and insects injurious to forest and shade trees. The work of a more technical nature includes the study of a native parasite destructive to injurious insects in Maine; tests of poison bait for the adult of the railroad worm; food plant tests and breeding experiments with plant lice; work upon the Psyllidae or jumping plant lice.

In addition to this, the Department is giving special attention to remedial measures for the wire worm and the potato flea beetle.

Plant Pathology. The publications of the year include:

Control of Blackleg; Disease of the Potato; Inoculation Experiments with Fungi from Diseased Leaves and Wood of the Apple; Investigations on the Prevalence, Distribution and Methods of Treatment of Various Important Maine Apples; a bulletin describing an apple rot caused by a new fungus which belongs to a class not before reported in America. Work which is completed and awaiting publication includes an apple disease caused by the genus *Fusarium*.

The main lines of investigation are confined to the apple and the potato. Considerable additional data have been obtained on the extent and distribution of plant diseases in the State. Work is being continued along the lines of orchard diseases, potato scab, and technical studies of bacteria association with potato soft rot and blackleg. Studies of the relation of different species of *Fusarium* which are known to cause diseases of plants, cause and methods of prevention of Baldwin spot on apples, cane blight of the raspberry, and root and stem diseases of ornamental plants such as snapdragon, aster, phlox, stock, etc., which have become very serious and destructive in the gardens of some of the summer residents of the State, are in progress.

Dr. Morse, the head of the Department, spent the college year at the University of Wisconsin at work upon some of the problems named above.

This Department is at work upon a complete and comprehensive bulletin on the potato diseases of Maine.

Highmoor Farm. It was with some misgiving that the committee appointed by the legislature of 1909 to select a farm for the Maine Agricultural Experiment Station invested all of the appropriation in a farm, without leaving anything for its equipment. For the first two years it was necessary to expend money in the development of the orchard, without hope of immediate return. It is a decided relief to see the indebtedness cleared up by the large crop of apples which was produced in 1911. This seems to make clear that the judgment of the purchasing committee was sound when it put all of the appropriation into that farm rather than into a lower priced one where part of the

appropriation could be used in equipment, and that the Experiment Station can make good and did make good on a proposition of this kind, and, most important to the State, it shows the possibility of Maine's neglected orchards when properly handled.

The farm when purchased cost \$10,000 and could be readily sold now for \$15,000. The crops sold from the farm have been sufficient to pay not only the running expenses (exclusive of experimental work), but for the development and improvements as well. It affords ample facilities for the work in orcharding and in plant breeding. Also it has been possible to undertake a series of experiments on culture with such crops as potatoes, oats, corn, and grain, extending over a term of years, which promise to give results of considerable practical importance to Maine farmers.

In addition to being a laboratory for the biologists, entomologists and plant pathologists, Highmoor farm is used as a place to study orchard and crop problems.

The orchard investigations are planned by a committee consisting of the Director, the Biologist, and the Plant Pathologist. The field experiments are planned by the Director. The details of the experiments are carried out by the Farm Superintendent and the Orchardist.

Orchard Investigations. The following publications have been issued during the year: Orchard Spraying Experiments; Two Years Work at Highmoor Farm; Orchard Notes.

The experimental work comparing culture versus pasturage, on orchard renovation, comparison of organic manure with commercial fertilizers in orchards, spraying experiments with fungicides and insecticides, experiments dealing with the relation of stock and cion on grafted trees, work in apple breeding, a test of highly nitrogenous fertilizers for orchards, and a study of the direct effect of fertilizers upon the apple crop are the more important lines that are continued.

Field Experiments. Five year rotation experiments comparing commercial manure and farm manure for sweet corn, and a comparison of the effect of sweet corn and other crops grown with and without farm manure as preceding seeding with oats and grass are in progress. Potato cultural experiments and potato fertilizer experiments and top dressing experiments on grass are continued.

The Annual Report of the Maine Agricultural Experiment Station, which includes the Bulletins and Official Inspections, aggregates several hundred pages and contains an account of the work which has been completed.

Respectfully submitted,

CHAS. D. WOODS,

Director of the Maine Agricultural Experiment Station